

Fall symposium

40 YEARS Bio-Pharmaceutical Sciences 10 years of educational innovation

Marjo de Graauw on behalf of our BFW-BPS education team and students



Universiteit
Leiden
The Netherlands
BFW • BPS



Discover the world at Leiden University

Me and > 25 years Bio-Pharmaceutical Sciences

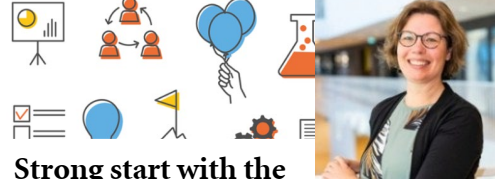
BPS student '97



Aesculaap '97



Science projectleader '20



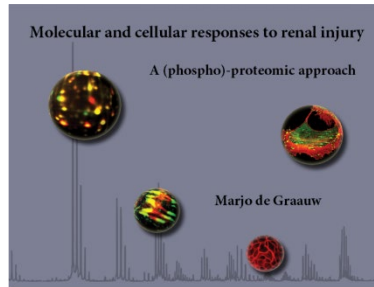
Strong start with the Science Skills Platform

Senior teacher '18



SKO-certificate for first ten teachers

PhD candidate '02

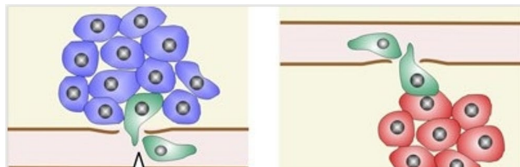


Lecturer (UD)
@
BFV·BPS

Educational advisor '16



Principle Investigator '07



Important factor identified in breast cancer metastasis

Teacher BFW-BPS '13



SURF award nomination for innovation of BPS laboratory education

Teaching Fellow '14

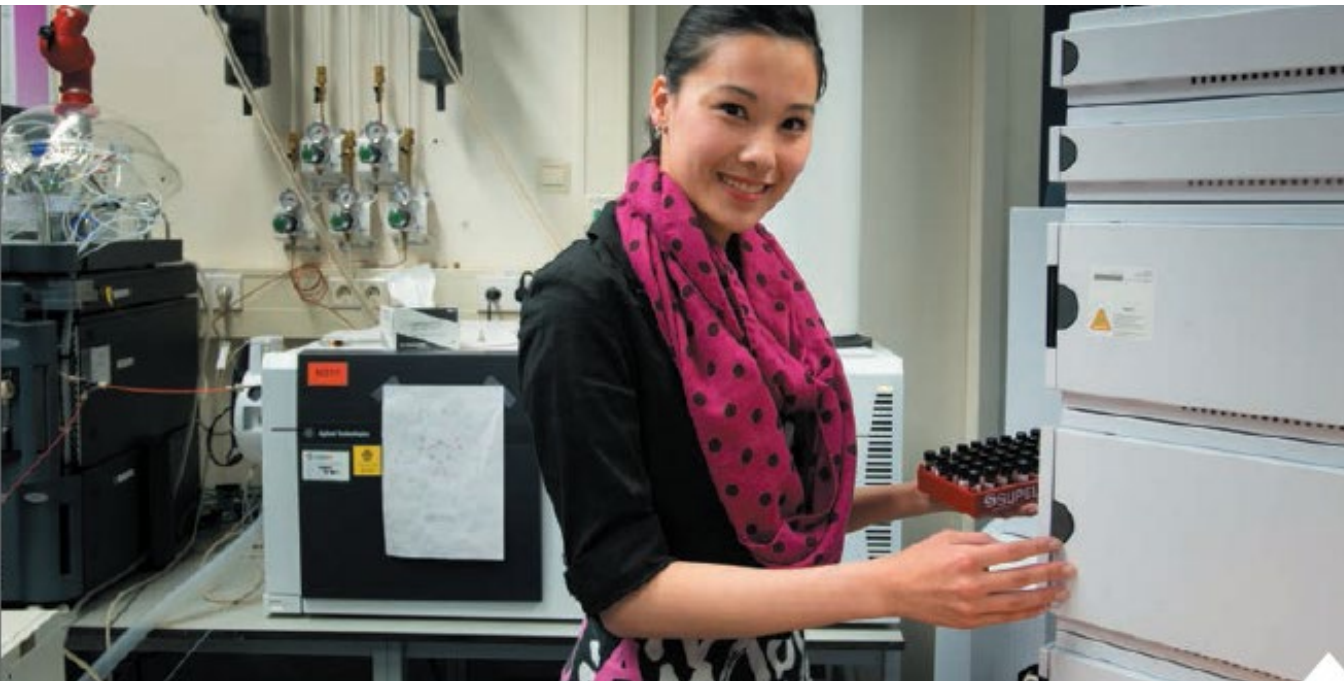


Six fellows rewarded- start of the Leiden Teachers' Academy



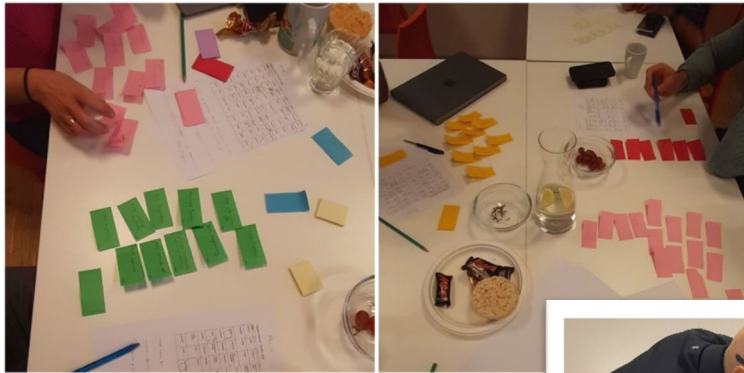
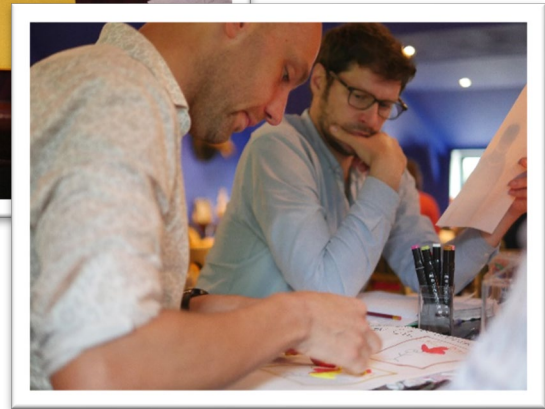
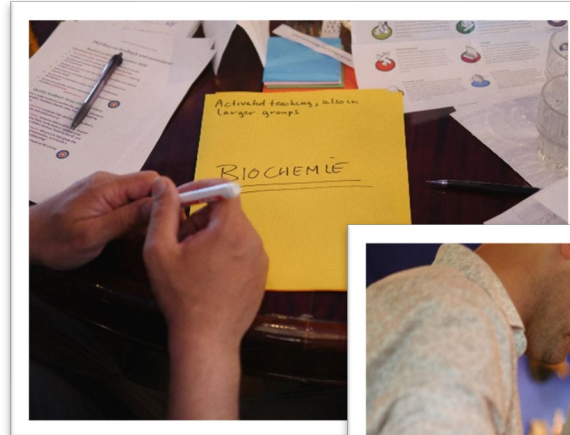
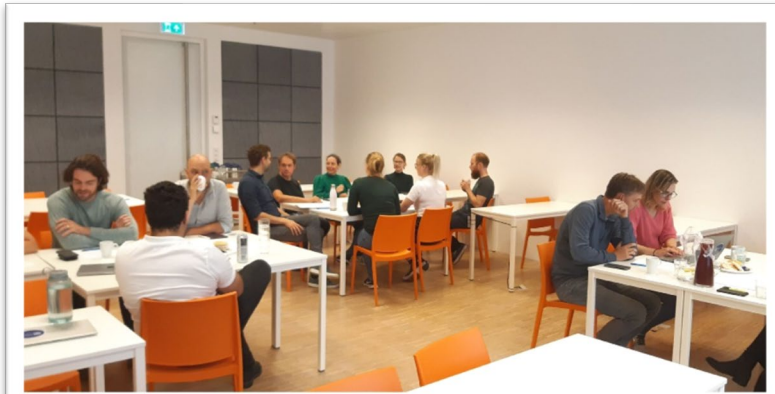
10 years of educational innovation

LACDR



Educator team meet-ups

BFV•BPS
educators



Define innovation aims and projects plans



Enhance research-based education (> 2014)



Change from cookbook to research practical (> 2015)



Also focus on development of (transferable) skills (> 2016)



Better preparation for a future career (> 2018)



Increase computational (research) skills development (> 2022)

Define innovation aims and projects plans



Enhance research-based education (> 2014)



Change of

Each innovation is

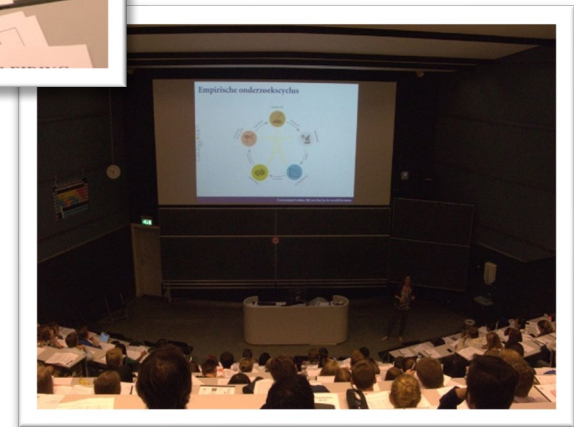
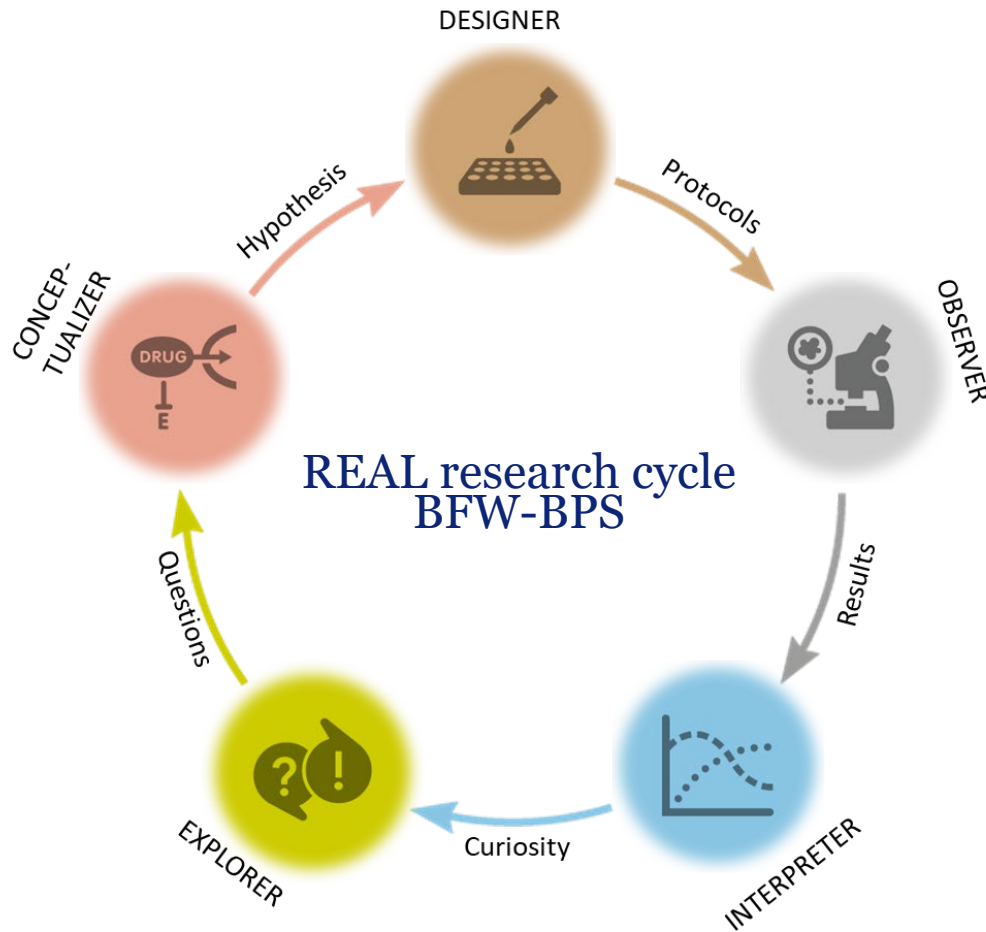
- evidence-based
- executed together with students
- scaled based on our research findings
- mostly financed externally



Increase computational (research) skills development (> 2022)

Enhance research-based education (>2014)

Financed by 3 ICTO scholarships and 2 LTA fellowships



© Bio-Farmaceutische Wetenschappen, Leiden Universiteit; S. Tax, M. Cleiren, M. de Graauw, en J. Geerling.

Skills and prepare for a future career (>2014)

Financed by LTA fellowships and Science subsidies

Skills learning trajectory

skill trainings, voluntary workshops, peer feedback, career assignments, etc.

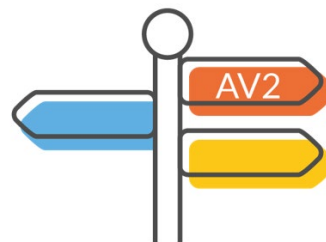
Academische Vorming 1 – AV1



Present your poster on innovative drug research



Academische Vorming 2 – AV2



From personal profile to vacancy

Waar komen afgestudeerde BFWers terecht?

Zoals je in de opdracht beschrijving van PCO-5 hebt kunnen zien is er niet één vooruitgestippeld pad dat een BFWer af legt. Hieronder vind je een aantal voorbeelden waar afgestudeerde BFWers terecht zijn gekomen (wordt in de komende weken nog uitgewerkt dus kom af en toe eens kijken). De meeste van hen hebben de master Bio-Pharmaceutical Sciences gevolgd, maar er zijn tal van andere (master) mogelijkheden! (Soms heeft een master bepaalde ingangseisen of is er een selectie. Je zou hier bv bij je minorkeuze al rekening mee kunnen houden).

In de alumni brochure van BFW/BPS vind je nog meer ervaringen.

Senior scientist computational chemistry - Bart Lenselink (werkveld A)

Principal Clinical Data Manager - Evi Creepsburg (werkveld B)

Scientist Drug Product Development - Marjolein Soethoudt (werkveld C)



Our research shows

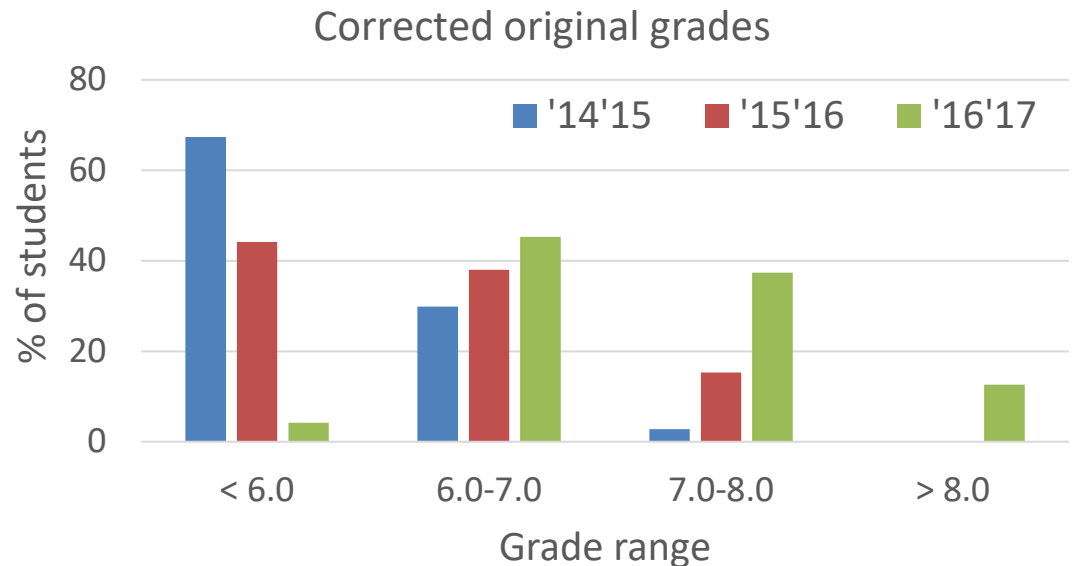
(n = 600 students)

Implementing our skills learning trajectory (*Academische Vorming*) resulted in **increased grades**.

– For example –
double blind reassessment of > 200 written BFW-2 practical reports

Course	Year	Average grade
BFW-2 (pCB)	14'15	5.7
BFW-2 (pCB)	15'16	5.8
BFW-2 (pCB)	16'17	7.2
BFW-1 (control)	15'16	4.5*
BFW-1 (control)	16'17	4.5*

* original grade before reassessment was on average 5.4 for a first written report.



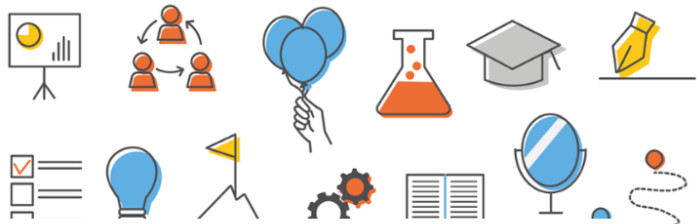
This research was financed by the Leiden Teachers Academy fellowship of dr. M. de Graauw

Skills and prepare for a future career (>2019)

Financed by LTA fellowships and Science subsidies

Science Skills Platform

A BPS initiative resulted in a versatile, digital skills learning environment for all 8000 students from the Faculty of Science.



More skills and higher grades: E-learning skills platform continues to be a success

21 September 2020

After a promising start, also the second pilot of the digital Brightspace skills platform is a success. Third-year bachelor students had thirty new skill modules at their disposal to support them with their research assignment. Despite the additional challenges posed by COVID-19, students that used the new skill modules actively obtained high grades and felt more skilled

> 100 skill modules



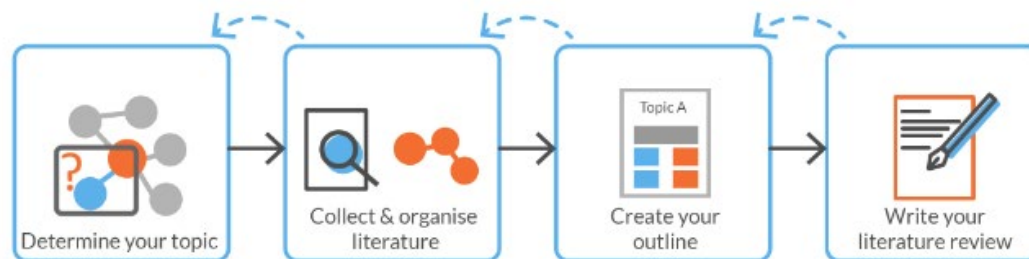
Explore the literature



Visualising information



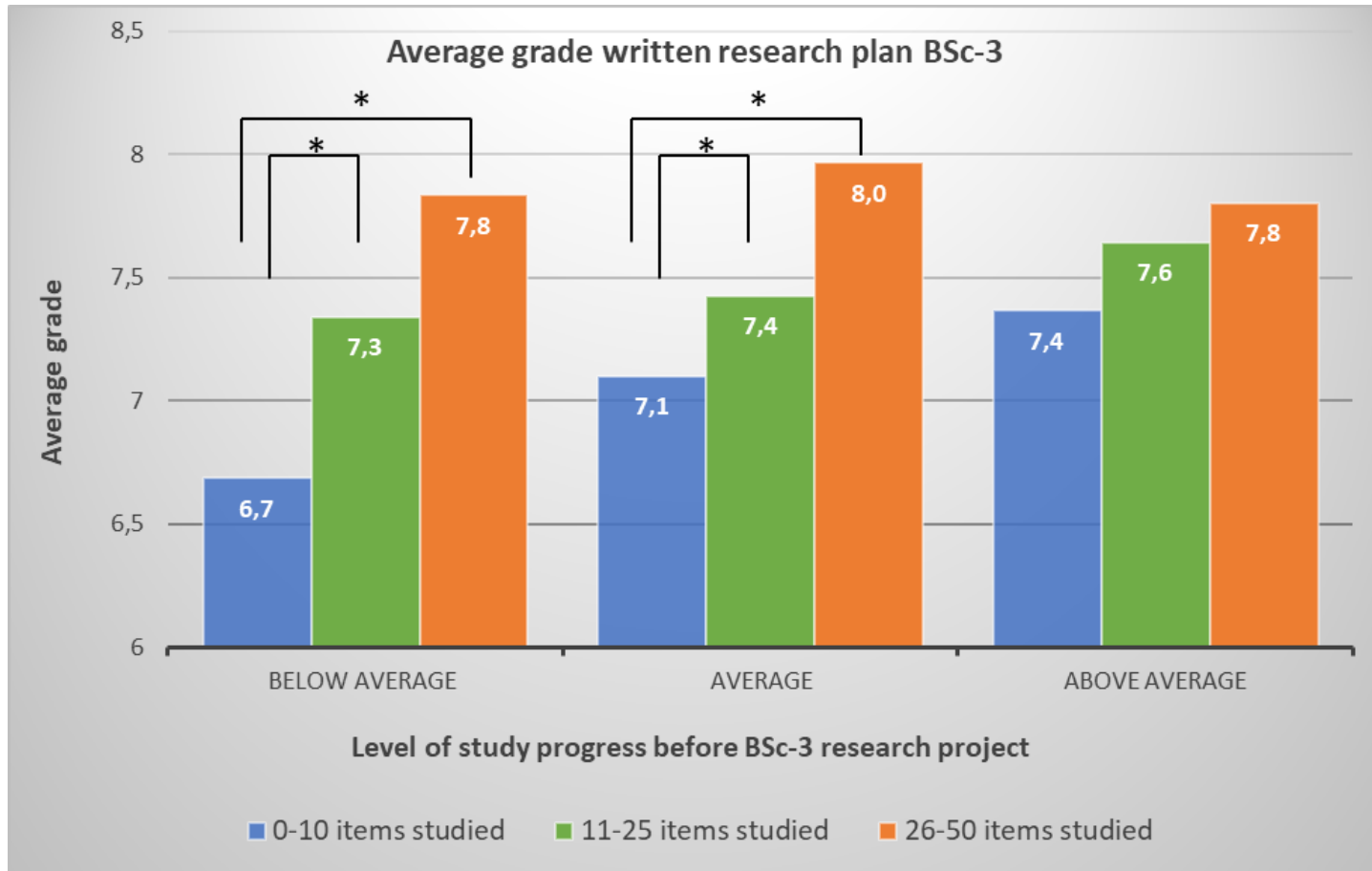
Writing a literature review



Our research shows

(n = 180 BFW-3 students)

BFW-3 students that used the Science Skills Platform obtained significantly **higher grades** for their written research plan



From cookbook to research practical (>2017)

Financed by LUF and SURF innovation grants

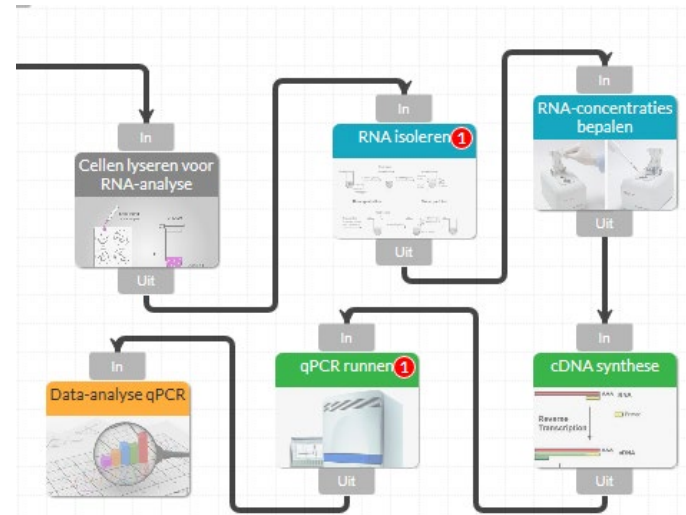
LabBuddy – a digital tool to design and practice your research experiments.



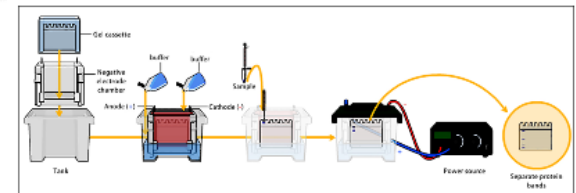
Successful implementation of BFW LabBuddy tool

09 June 2017

In June 2016, Janine Geerling and Marjo de Graauw were awarded a LUF-grant of €10.000 to design a digital laboratory support tool for the 2nd year BFW practical course on biochemistry (BC2p). With the help of a team of student assistants, Janine and Marjo managed to design a BFW LabBuddy tool that allows students to design their experiments, gain insight in the required techniques and to improve their understanding of the BC2p research topic.



▼ Eiwitten scheiden



- Feedback
- Achtergrondinformatie
- Kennisclip
- Vraag ?
- Labjournal
- Protocol

From cookbook to research practical (>2022)

Financed by LUF and SURF innovation grants

LabBuddy – a digital tool to design and practice your research experiments.



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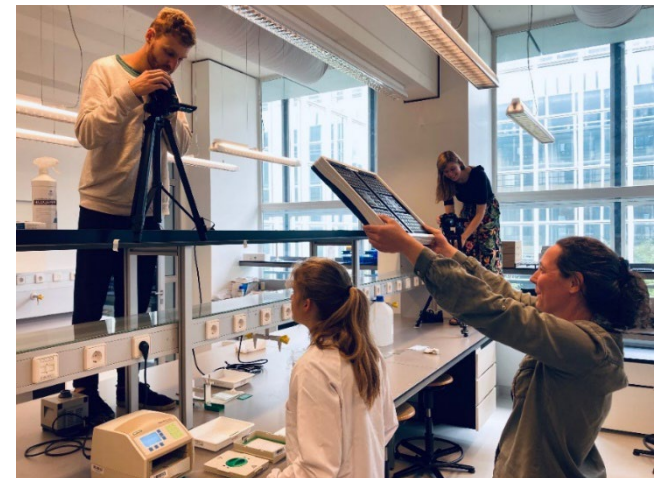
Interactive videolabs to practice your experiments.



Improving education with videos and humour

10 May 2022

To better prepare students for lab sessions, a team from the BSc-programme Bio-Pharmaceutical Sciences (BFW) creates interactive videos. These videos use humour and examples to show students basic skills and commonly used procedures. 'We want to make education more efficient and fun.'



Interactive videolabs (>2022)

Financed by SURF innovation grant

Our BPS Open Educational Resource (OER) www.labprep.video



“I experience less stress in the lab”
- BFW-2 student -


Boost your student's lab work with free interactive videos

Are you a teacher that works with students in the lab? Here, you can find free videos to let your students practice relevant techniques and make their lab experience more worth-while.

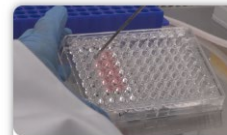
Search Your Video

Categories



 **Teacher guide**

Interesting in making videos yourself? Consult our teacher guide!



Exposing cell culture



Liquid-liquid extraction



Protein detection

Our research shows

(n = 650 students, spread over two years and three different practicals)

Meaningful Learning in Laboratory* research showed that LabBuddy & interactive videos **increased** student...

- **Motivation**, by increasing the attractiveness of the practical and the understanding of the research topic;
- **Confidence**, by allowing students to independently perform scientific experiments;
- **Skill levels** and an active attitude of students
- **Grades**, average grades for overall lab skills going up **from 6.8 to 7.9!**

* Galloway et. al. J. of Chem. Edu. 2015 lassoeducation.org/meaningful-learning-in-laboratory-instruments

This research was sponsored by the Leids University Fund / Stichting Elise Mathilde Fund

Remote (BOO) teaching '20-'21

Educational innovation at maximum speed!



- On behalf of the BOO students 2020 -

“We are grateful for how the remote BOO was set-up. Big appreciation to all of you.”

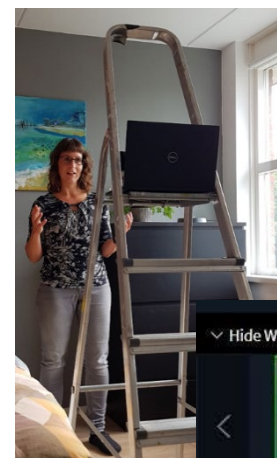
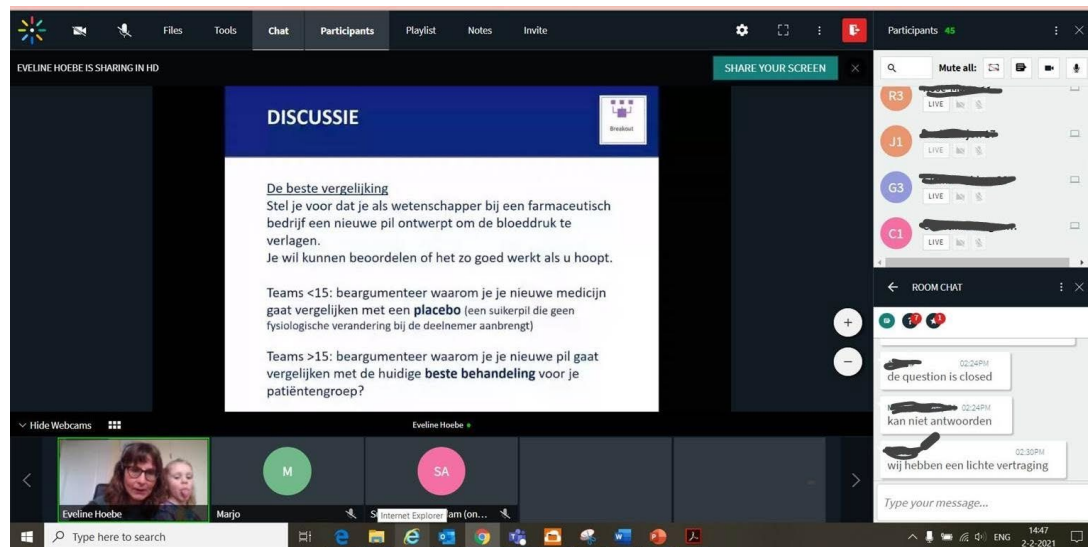
Change of plans

One month prior to the start of the final research assignment, the educational team of Bio-Pharmaceutical Sciences was set to go and ready to inform all eligible 178 students in which division their research assignment would take place. And came COVID-19...

In four weeks-time the team had to transform a twelve-week practical research assignment (BOO for insiders) into a remote version, because students and staff could not come to the University. Lots of students were worried that their BOO would not take place and that they would be unable to graduate in time. But luckily, educational innovation at maximum speed resulted in a fully remote BOO. Students could either design a complete research proposal or perform a

Year	Student number	Student grade
2019	134	7.4
2020	178	7.7*
2021	202	7.8*

* with Science Skills Platform usage



Computational learning trajectory and AI (>2024)

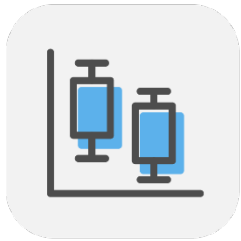
Noteable and VR lecture room are financed by Chris Oomen fonds



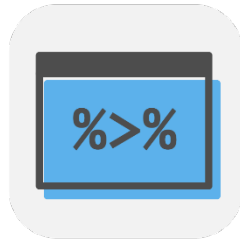
Nieuw fonds op naam steunt onderwijsfaciliteiten Biofarmacie en bestrijding nepnieuws

Gepubliceerd op 13 april 2022

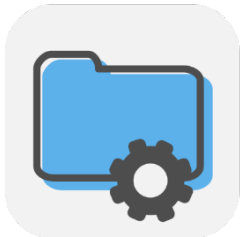
Statistics



Programming



Data-management



Mathematics



Creating a computational skills portfolio



“First new course started on October 9th 2024”

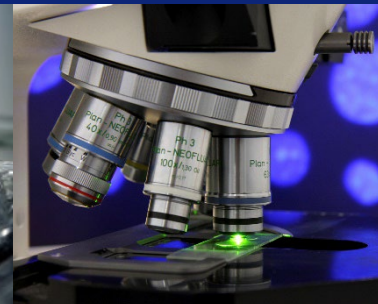
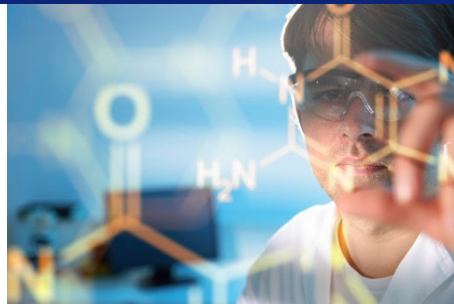


Douwe Breimer, Chris Oomen en Annetje Ottow

Great thanks to all enthusiastic
educators and BFW-BPS students that
worked together over the past 10 years to
boost our BFW-BPS education!



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- **Question from the audience** –

“What would be your dream for the next few years?”

- **My answer**–

“Oei, uhm....for me this is a very emotional question.

My biggest dream is that – sooner rather than later – I can work in an institute where everyone is proud of the education program, where the word teaching load does not exist, and where the work presented in this presentation is recognized and the people involved officially rewarded”

“From the bottom of my heart, that’s my biggest dream for the near future”



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